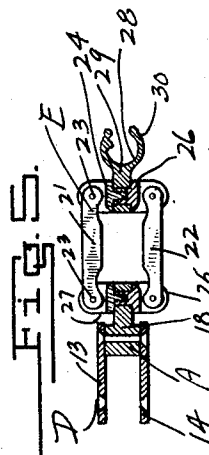
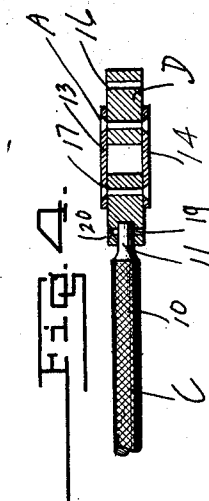
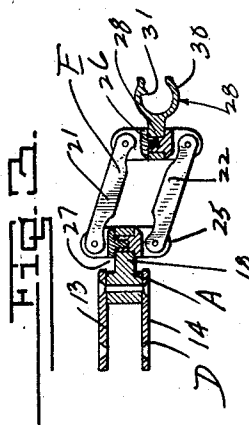
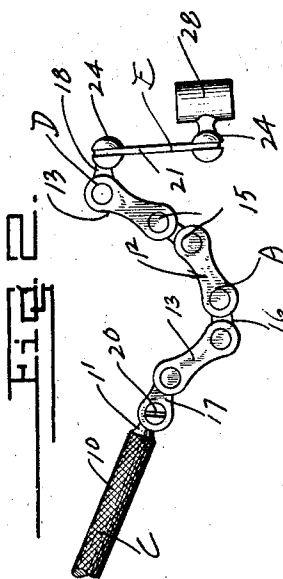
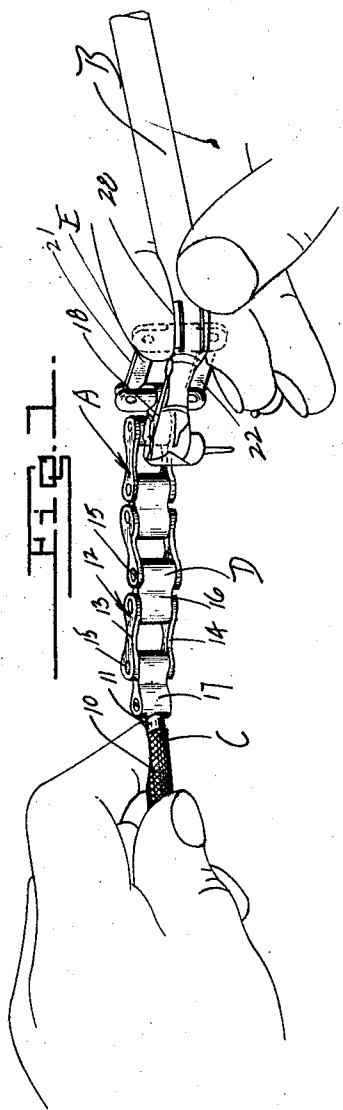


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 DRILL PARALLELER.
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DRILL-PARALLELER.

1,387,329.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER STARK, a citizen of the United States, residing at Auburn, in the county of Placer and State of California, have invented certain new and useful Improvements in Drill-Parallelers, of which the following is a specification.

This invention relates to tools, and the primary object of the invention is to provide an improved device especially adapted for use in connection with dental engine hand pieces which is so constructed that cavities for inlays or pin teeth for abutments can be bored in direct parallel relation and thereby permit of the finished inlay or bridge to go easily and firmly in place.

Another object of the invention is to provide an improved drill attachment for dental work in which the drill, bur or the like, will be held in such a manner that the cavity being made for bridge work or the like will be parallel to all previous or all successive ones.

A further object of the invention is to provide an improved device which will effectively permit the bur, drill or the like to be swung in a horizontal and a vertical plane and still remain parallel to a cavity bored and thereby permit of other cavities being bored in parallel relation to the first cavity.

A further object of the invention is to provide an improved device for drilling parallel cavities which can be readily and quickly attached to or detached from an engine hand piece and which will allow a firm hold to be obtained on the hand piece and permit the hand piece to be used in the ordinary manner.

A further object of the invention is the provision of an improved drill paralleler embodying a series of joints all working on the same plane of action, a pair of parallel arms working in a plane at right angles to the joints, and an anchored handle, the parallel arms carrying spring means for detachably engaging an engine hand piece.

A still further object of the invention is to provide an improved drill attachment of the above character which is durable and efficient in use, one that is simple and easy

to manufacture, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part of this specification, in which drawings:

Figure 1 is a perspective view of the improved drill paralleler attached to an engine hand piece and showing the same in operation.

Fig. 2 is a plan view of the improved drill paralleler.

Fig. 3 is a fragmentary vertical section through the drill paralleler.

Fig. 4 is a detail horizontal section through the drill paralleler showing the means of connecting the anchorage handle to the joints, and

Fig. 5 is a fragmentary vertical section similar to Fig. 3 showing the arms arranged in a horizontal plane.

Referring to the drawings, in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates the improved drill attachment and B the engine hand piece which may be of the ordinary or any preferred construction.

The improved attachment A includes an anchorage portion C, a horizontally swinging portion D, and a vertically swinging portion E.

The anchorage portion C comprises a cylindrical handle 10, the outer surface of which is serrated or milled so that a firm grip may be obtained thereon so as to prevent the slipping of the same when in use. The inner end of the handle 10 is provided with a reduced extension 11 which is adapted to be secured to the horizontally swinging portion D. The horizontally swinging portion D includes a plurality of joints 12 each of which includes upper and lower flat plates 13 and 14 which are pivotally secured by means of vertically disposed pins 15 to solid pieces 16 which are arranged intermediate the upper and lower plates 13 and 14.

The upper and lower plates 13 and 14 forming the terminals of the joints 12 are pivotally secured to outwardly extending solid members 17 and 18. The body 17 is provided with an inwardly extending bore 19 which receives the reduced extension 11 formed on the handle 10 and the extension is held against displacement on the body 17 by means of a removable fastening element 20. The end member 18 has its outer end reduced in thickness and attached to the vertically swinging portion E.

The vertically swinging portion E comprises a pair of parallel arms 21 and 22, the terminals of which are mounted on horizontal pivots 23 which are secured in the slotted portions of pairs of upper and lower heads 24 and 25. The pairs of upper and lower heads 24 and 25 are detachably connected together as at 26 and have outwardly extending annular flanges 27 for a purpose which will hereinafter more fully appear.

The reduced portion of the end member 18 is provided with an opening which is adapted to receive the inner end of the vertically swinging portion E and this connection permits the vertically swinging portion E to swing in a horizontal plane on the end member 18 and the flanges 27 engage the upper and lower surfaces of the end member. The outer portions of the vertically swinging portion E carries for movement in a horizontal plane the spring clamp 28 and the annular flanges 27 carried by the vertically swinging portion engage the upper and lower surface of the shank 29 formed on the spring clamp.

The spring clamp 28 includes the shank 29 and the outwardly extending semi-circular jaws 30 which are adapted to engage around the engine hand piece B. One of the jaws 30 is provided with an inwardly extending pit 31 which is adapted to engage in the ordinary oil hole formed in the engine hand piece B.

In use of the improved device, the handle 10 is firmly held by the operator's assistant or held in the left hand of the operator while the engine hand piece is held and operated in the usual manner. If so desired the hand may be rested lightly upon the face of the patient, so that movement of the handle out of correct position will be prevented. After one cavity has been bored in a tooth it is merely necessary to raise the hand piece and swing the same on a horizontal pivot to the next tooth which is to be bored. Owing to the arms 21 and 22 which always remain in parallel relation, when the hand piece is moved downwardly to the bore of the next hole, the same will be bored in direct parallel relation to the first hole bored.

From the foregoing description it can be seen that an improved device is provided for the hand pieces of dental engines which will

effectively permit cavities for the pin teeth of bridge abutment to be bored in direct parallel relation to each other.

Changes in details may be made without departing from the spirit or scope of the invention, but,

I claim:

1. A device for drilling holes in parallel relation comprising an anchorage portion, a plurality of horizontally swinging joints carried by the anchorage portion, a vertically swinging portion carried by the horizontally swinging joints, and means carried by the vertically swinging portion for engaging a tool.

2. A tool attachment comprising an anchorage handle, a plurality of horizontally swinging joints, a pair of vertically swinging parallel arms carried by the horizontally swinging portions, and a horizontally swinging clamp carried by the vertically swinging parallel arms.

3. The combination with an engine hand piece, of an attachment therefor comprising an anchorage handle, a plurality of horizontally swinging joints carried by the handle, a pair of vertically swinging parallel arms carried by the horizontally swinging portion, and a spring clamp carried by the parallel swinging arms arranged to engage the hand piece.

4. The combination with the hand piece of a dental engine, of an attachment therefor including an anchorage handle, a plurality of horizontally swinging joints, a pair of parallel arms carried by the horizontally swinging joints and arranged for movement in a vertical plane, and means carried by the parallel arms for movement in a horizontal plane for detachably engaging the hand piece of the engine.

5. The combination with the hand piece of a dental engine, of an attachment therefor including an anchorage handle, a plurality of joints arranged for movement in the same plane, a pair of spaced parallel arms carried by the joints and arranged for movement in a plane at right angles to the movement of the joints, and a clamp movably carried by the parallel arms for detachably engaging the hand piece.

6. The combination with the hand piece of a dental engine, of an attachment therefor including an anchorage handle, a plurality of joints carried by the handle and arranged for movement in the same plane, a pair of spaced parallel arms arranged for movement in a plane at right angles to the joints, a spring clamp carried by the outer end of the parallel arms arranged for movement in a plane at right angles to the plane of movement of the arms, the clamp being adapted to detachably engage the hand piece.

7. The combination with a dental engine hand piece having an oil hole therein, of an

attachment therefor comprising a cylindrical handle adapted to be engaged by one hand of the operator, a plurality of joints secured to the handle and arranged for movement in the same plane, pairs of spaced slotted heads, parallel arms pivotally secured to the heads, means connecting the inner head to the joints, the parallel arms arranged to swing in a plane at right angles to the joints, a spring clamp carried by the outer head and an inwardly extending tit formed on the clamp arranged to engage in said oil hole.

WALTER STARK.